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Coronary Plaque, Inflammation, Subclinical Myocardial Injury and Major Adverse Cardiovascular Events in the REPRIEVE Substudy

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Background

The risk of heart disease is increased approximately 2 times among people with HIV (PWH) as compared to people without HIV. In the REPRIEVE study, pitavastatin reduced the risk of major adverse cardiovascular events (like heart attack and stroke) and reduced fatty build up (noncalcified coronary artery plaque, NCP) in the blood vessels that supply the heart among PWH with low-to-moderate heart disease risk.

Goals of the Study

The goal of the study was to see if fatty plaque buildup in the vessels that supply blood to the heart is related to major heart disease events. We also investigated if certain biological markers in the blood increased the risk of major heart disease events.

REPRIEVE enrolled PWH between ages 40-75 with low-to-moderate traditional heart disease risk, randomized these participants to a cholesterol-lowering medication called pitavastatin or to placebo (a pill that contains no medication). Participants were followed for, on average 5 years, for heart disease events like a heart attack or stroke. Main findings from REPRIEVE were that [statin therapy reduced heart disease events among PWH by 36%](#), prompting guideline changes recommending statin use in PWH. U.S. REPRIEVE participants in the Mechanistic Substudy underwent computed tomography (CT) scans of the blood vessels surrounding the heart and blood tests measuring levels of inflammation markers and proteins.

➤ The participants:

- 804 REPRIEVE Substudy participants (402 taking pitavastatin, 402 taking placebo)
 - Low-to-moderate traditional heart disease risk
 - Median age at enrollment: 51 years
 - 139 (17%) women and 665 (83%) men

The Findings:

- At study entry, 49% of participants had plaque and 40% had NCP in the blood vessels that supply the heart.
- Having NCP at entry was linked to a 2.5x higher risk of experiencing heart disease events, after accounting for whether participants were taking statin medication or placebo.
- The risk of MACE was also higher for participants who had multiple blood vessels with NCP, a larger volume of NCP, or a coronary artery calcium (CAC) score >0.
- At study entry, levels of hs-CRP and IL-6 (blood markers of inflammation) and hs-cTnT (a blood marker of heart injury) were higher for those who later experienced a major heart disease event.
- Adding hs-CRP, IL-6, and hs-cTnT levels to a prediction model improved our ability to predict whether someone will go on to have a major heart disease event.
- Statin therapy appeared to have a greater benefit for participants with NCP or detectable levels of hs-cTnT, although the numbers of participants in these groups were small.

In Summary: Among PWH with low-to-moderate heart disease risk in the REPRIEVE Mechanistic Substudy, noncalcified coronary plaque and higher levels of hs-CRP, IL-6, and hs-cTnT predicted who would go on to have a major heart disease event.

REPRIEVE Trial Website: reprivetrial.org

The findings shared in this summary are from the REPRIEVE population at a specific point in time. These findings are descriptive and not intended to change clinical care. If you have questions about what you've read, please talk to members of the REPRIEVE study team at your local site or a health care provider